

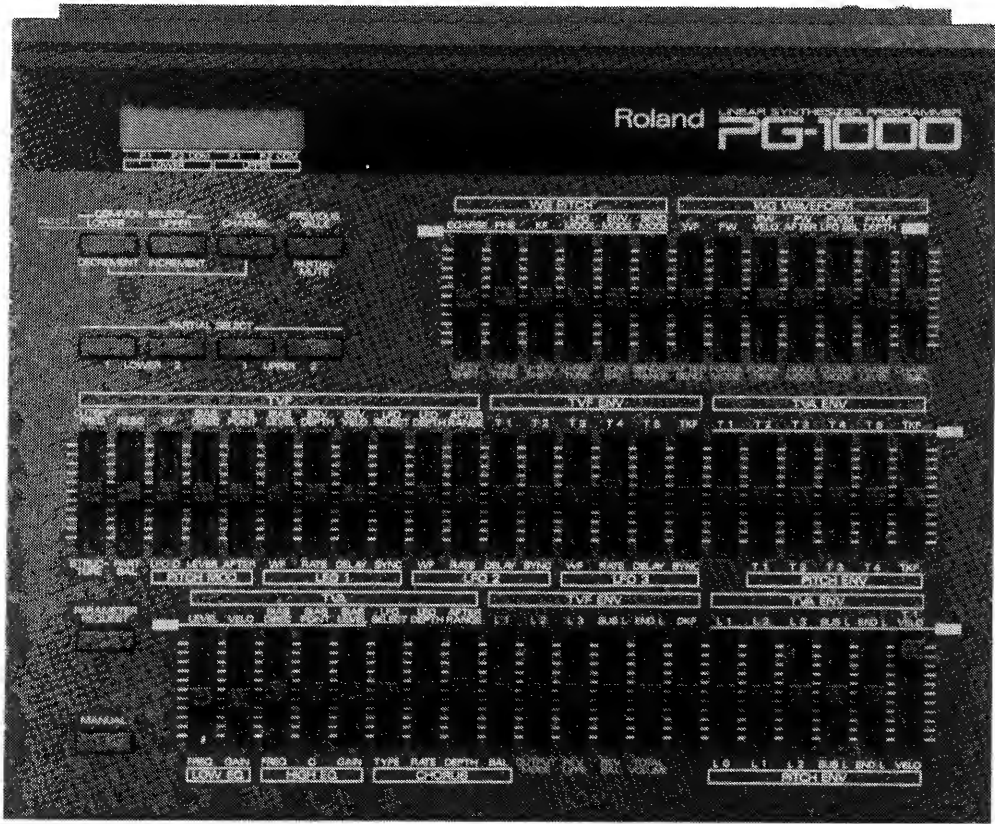
PG-1000

SERVICE NOTES

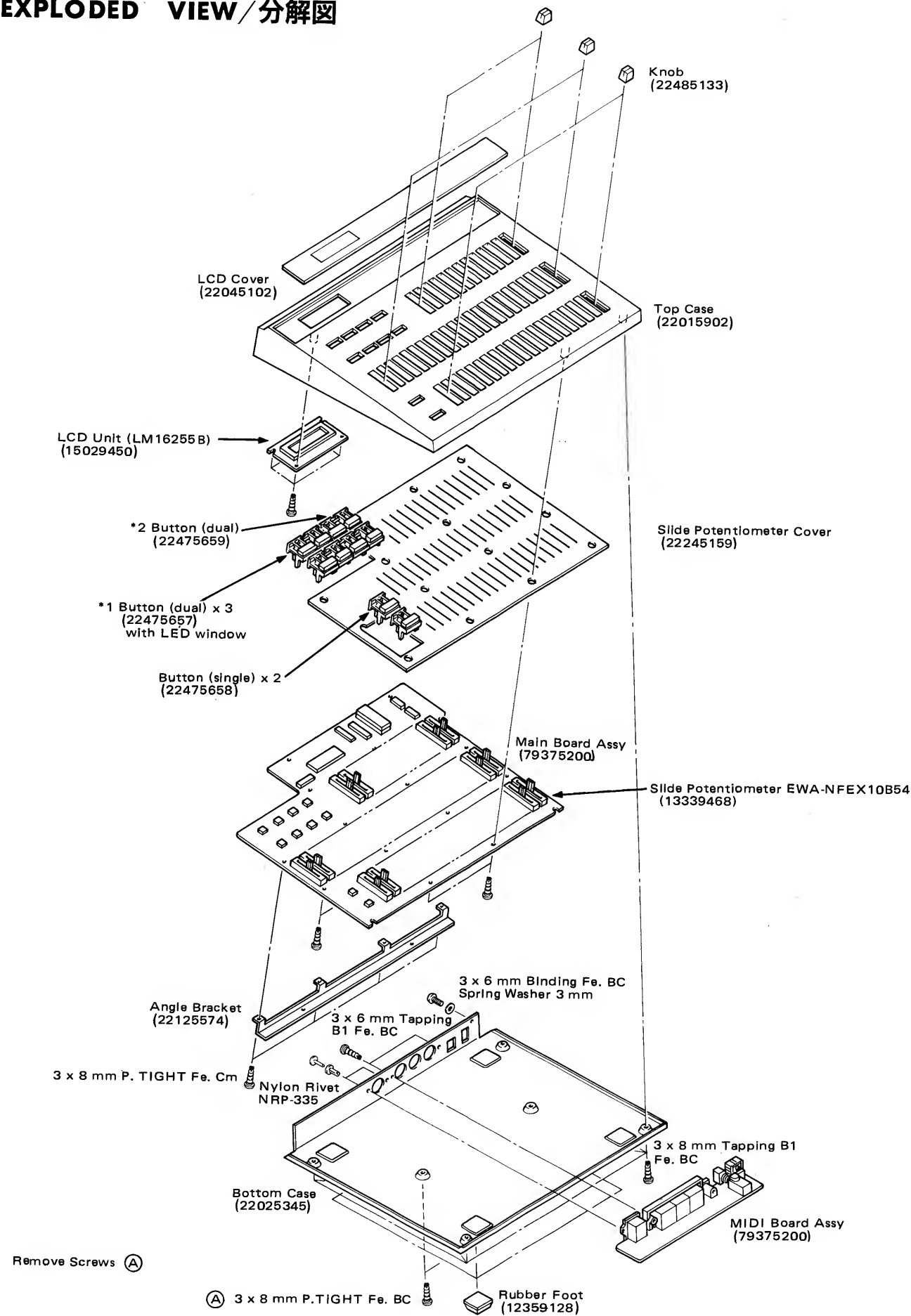
First Edition

SPECIFICATIONS

CURRENT CONSUMPTION	...	150mA DC at 9V
WEIGHT	...	1.6 kg/3 lb 9 oz (without Adaptor)
DIMENSIONS	...	318(W) x 268(D) x 53(H) mm
		12-1/2" x 10-9/16" x 2-1/16"
ACCESSORY	...	AC ADAPTER
	PSA-100	100V
	PSA-120	117V
	PSA-220	220V
	PSA-240	240V Australian



EXPLODED VIEW / 分解図



*1 This type separable into two: replacement single type only.
このボタンは2つに分割可能。補修品はシングルで供給します。
Button (single) 22475656

*2 This type separable into two: replacement single type only.
このボタンは2つに分割可能。補修品はシングルで供給します。
Button (single) 22475658

PARTS LIST

CASING		
22015902	Top Case	
22025345	Bottom Case	
22045102	LCD Cover	
22125574	Angle Bracket	
12359128	Rubber Foot	
22245465	LCD Dust Cover	
22245159	Slide Potentiometer Cover	
BUTTON/KNOB		
22485133	knob	slide potentiometer
22475657	* 1 button (dual) with LED window	COMMON SELECT, PARTIAL SELECT
22475658	button (single)	PARAMETER REQUEST, MANUAL
22475659	* 2 button (dual)	MIDI SELECT, PREVIOUS VALUE
22499175	button	POWER
<i>*This type separable into two: replacement signle type only. 1: button (single) 22475656. 2: button (single) 22475658</i>		
このボタンは2つに分割可能。補修品はシングルで供給します。		
AC ADAPTER		
12449509	PSA-100	100V
12449510	PSA-120	117V
12449511	PSA-220	220V
12449512	PSA-240	240V Australian
SOCKET		
13429168	MIDI 3-NS (triplet)	MIDI IN/OUT/THRU
13429615	TCS5350-01-1111	DIN socket (PARAMETER IN)
13449706	HCE0470-01-230	AC adaptor jack
13429534	ICE-286-S-TG	EP ROM
SWITCH		
13129143	SDDW A1	POWER
13169633	SKHHAD039A	
TRANSFORMER		
12449552	D 32-45	EL inverter
LCD UNIT		
15029450	LM16255B with EL, PCB and wirings	
	<i>No replacement for individual parts.</i>	
	ユニット単位で供給。	
PCB ASSEMBLY		
79375200	Main Board (PCB 22925458 1/2)	
79375300	MIDI Board (PCB 22925458 2/2)	
POTENTIOMETER		
13339468	EWA-NFEX10B54	50kB all potentiometers
INDUCTOR		
12449265	ELE-H102KA	1mH line filter
13529105	DSS 310-55D223S	EMI filter
12449294	BL03RN2-R62T2	
CRYSTAL		
12389765	TQC-226A-612 12MHz	

TRANSISTOR		
15119132	2SA1015GR	
15129151	2SC1815GR	
TRANSISTOR ARRAY		
15149114	M54527P	
RESISTOR ARRAY		
13919312	RMLS 8-153J	15k x 8
CAPACITOR ARRAY		
13529115	EXFP8101MW	100P x 8
IC		
(main board)		
15179256	μPD78C10G	CPU
15449102	TMM2764D	EP ROM
15179343S0	LC3517 AS 12	S RAM
15159113T0	TC4051BP	8 channel multiplexer/demultiplexer
15159503	TC40H000P	quad 2-input NAND gate
15159510	TC40H074P	dual D-type flip-flops
15159506	TC40H138P	3-8 line decoder/demultiplexer
15169544	TC74H573P	octal transparent latches (with 3 state outputs)
(MIDI board)		
15169304X0	SN74LS04N	hex inverters
15229706	TLP-552	optoisolator
15199135	L78MR05	voltage regulator
DIODE		
15019152T0	1SS176 TPA-7	100V 1A rectifier
15019281	1SR35-100A T-93	
(LED)		
15029222	SLR55VC3F	
CONNECTOR		
13439330	IL-S-3P-S2T2-EF	
13439297	IL-S-8P-S2T2-EF	
MISCELLANEOUS		
22195889	MIDI holder	
22255137	LCD shield paper	
12469158	SC-7-BS-T	heat sink

TEST MODE

1. Press and hold PARAMETER REQUEST then switch the power on: the instrument will turn on all of the display dots, indicating that it is now in the test mode.

2. Test panel buttons, LCD and LEDs to the table below (in any order).
1. PARAMETER REQUEST を押しながら、電源オン。
(ディスプレイの全ドットが点灯し、テスト・モードになる。)

2. 各ボタンで、LCD、LED の動作を確認。

Press button	LCD will	How LEDs response
MANUAL	Turn off all dots 全ドット消灯	COMMON SELECT: on , others: off COMMON SELECT の 2 つの LED のみ
PARAMETER REQUEST	Turn on all dots 全ドット点灯	PARTIAL SELECT: on PARTIAL SELECT の 4 つの LED 点灯
MIDI CHANNEL	Unaffected 変化せず	All: on 全 LED 点灯
PREVIOUS VALUE	Unaffected 変化せず	All: off 全 LED 消灯
COMMON SELECT PARTIAL SELECT	Unaffected 変化せず	Only LED associates with pressed button: on 押したボタンの LED のみ点灯

3. Turn the power off.

Conducting the following checking is recommended to make sure that all panel controls are functioning satisfactorily.

4. Turn the power on (normal play mode).

5. Press all PARTIAL SELECT buttons to light mated LEDs.

6. Move all edit knobs in any order and verify the corresponding indications on the display.
3. 電源オフにする。

各エディット・ツマミのチェックは、通常の操作状態で次のように行なう。

4. 電源オンにする。

5. PARTIAL SELECT のインジケーターをすべて点灯させる。

6. 任意の順に EDIT ツマミを動かすと、EDIT ツマミに対応した画面になると同時に、設定値が変化することを確認。

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
U

MAIN BOARD

7937520000

VR38 TVA VELO
VR37 TVA LEVEL
VR39 TVA BIAS DIREC
VR14 TVF CUTOFF FREQ
VR18 TVF BIAS POINT
VR15 TVF RESO
VR16 TVF KF
VR17 TVF BIAS DIREC

VR50 TVF ENV DKF
VR49 TVF ENV END L
VR51 TVF ENV L1
VR48 TVF ENV SUS L
VR31 TVF ENV T1
VR28 TVF ENV T4
VR26 TVF ENV T5
VR30 TVF ENV TKF

VR13 WG WAVEFORM PCM
VR36 TVA ENV TKF
VR12 WG WAVEFORM PWM DEPTH
VR55 TVA ENV T5
VR11 WG WAVEFORM PWM LFO SEL
VR8 WG WAVEFORM PW
VR9 WG WAVEFORM PW VELO
VR10 WG WAVEFORM PW AFTER

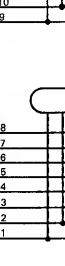
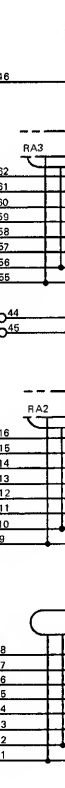
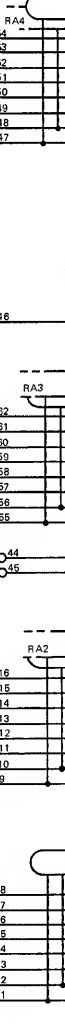
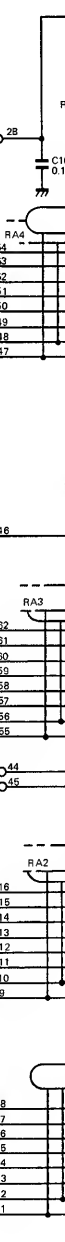
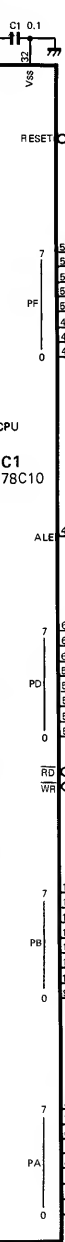
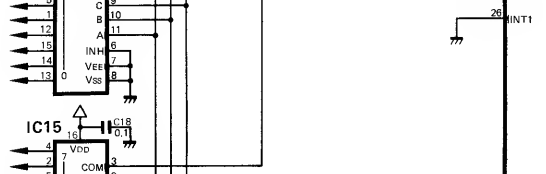
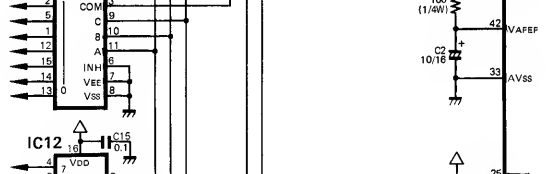
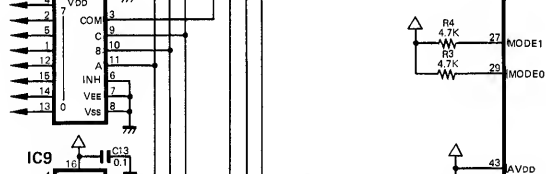
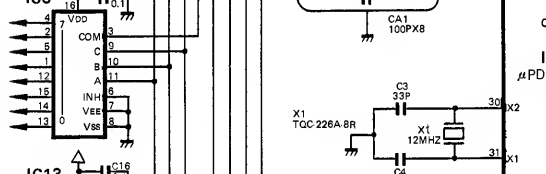
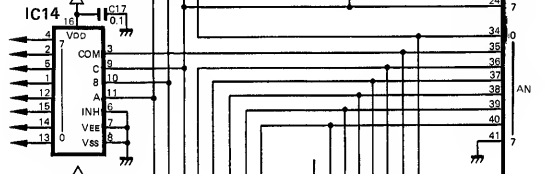
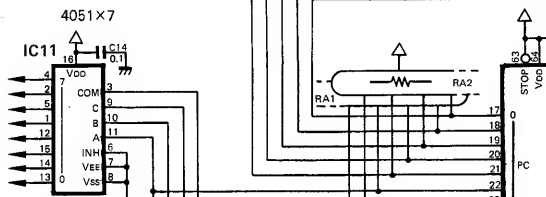
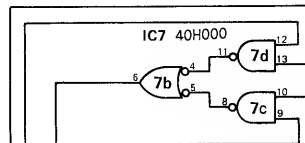
VR46 TVF L2
VR45 TVF L1
VR47 TVF L3
VR44 TVA AFTER RANGE
VR27 TVF ENV T3
VR23 TVF LFO DEPTH
VR24 TVF AFTER RANGE
VR25 TVF ENV T1

VR1 WG PITCH COARSE
VR2 WG PITCH FINE
VR26 TVF ENV T2
VR3 WG PITCH KF
VR7 WG WAVEFORM WF
VR4 WG PITCH LFO MODE
VR5 WG PITCH ENV MODE
VR6 WG PITCH BEND MODE

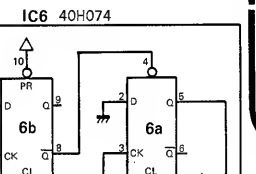
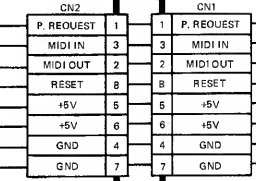
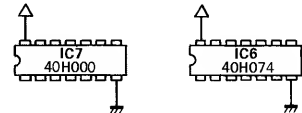
VR42 TVA LFO SELECT
VR41 TVA BIAS LEVEL
VR43 TVA LFO DEPTH
VR40 TVA BIAS POINT
VR22 TVF LFO SELECT
VR19 TVF BIAS LEVEL
VR20 TVF ENV DEPTH
VR21 TVF ENV VELO

VR54 TVA ENV SUS L
VR53 TVA ENV L3
VR55 TVA ENV END L
VR52 TVA ENV L2
VR56 TVA ENV T1 VELO
VR32 TVA ENV T2
VR33 TVA ENV T3
VR34 TVA ENV T4

VR1-56 : EWA-NFEX10854

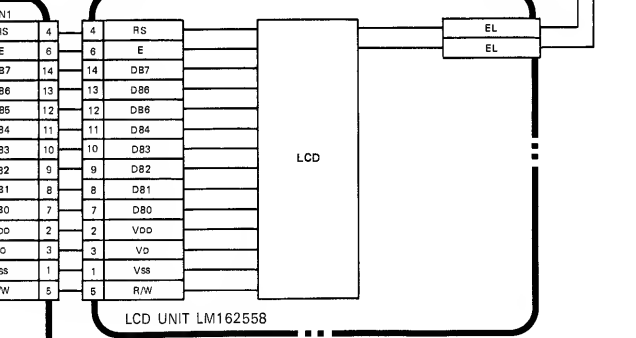
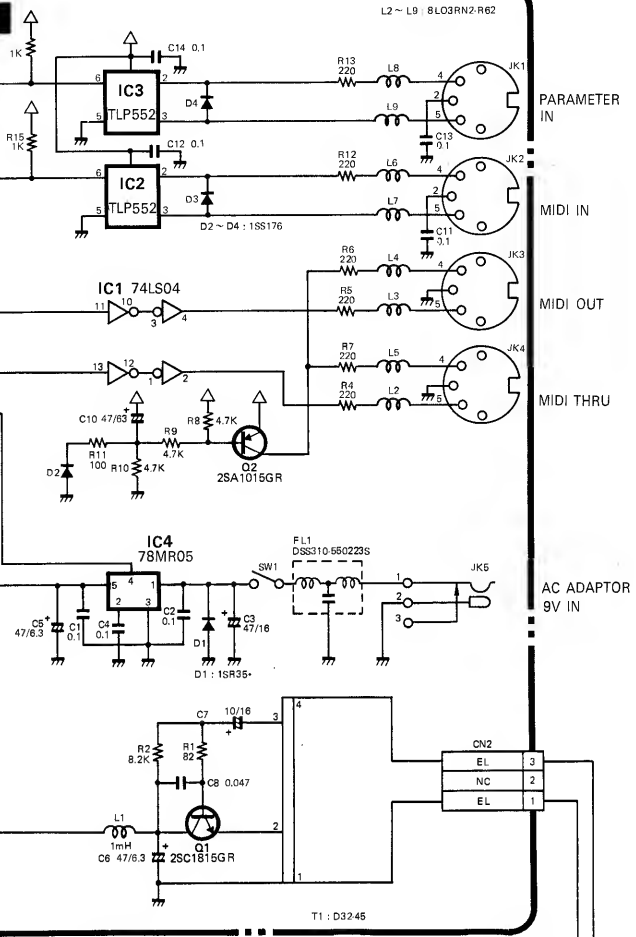


D7 ~ D16 : 1S5176
SW1 ~ SW16 : SKHHADG39A



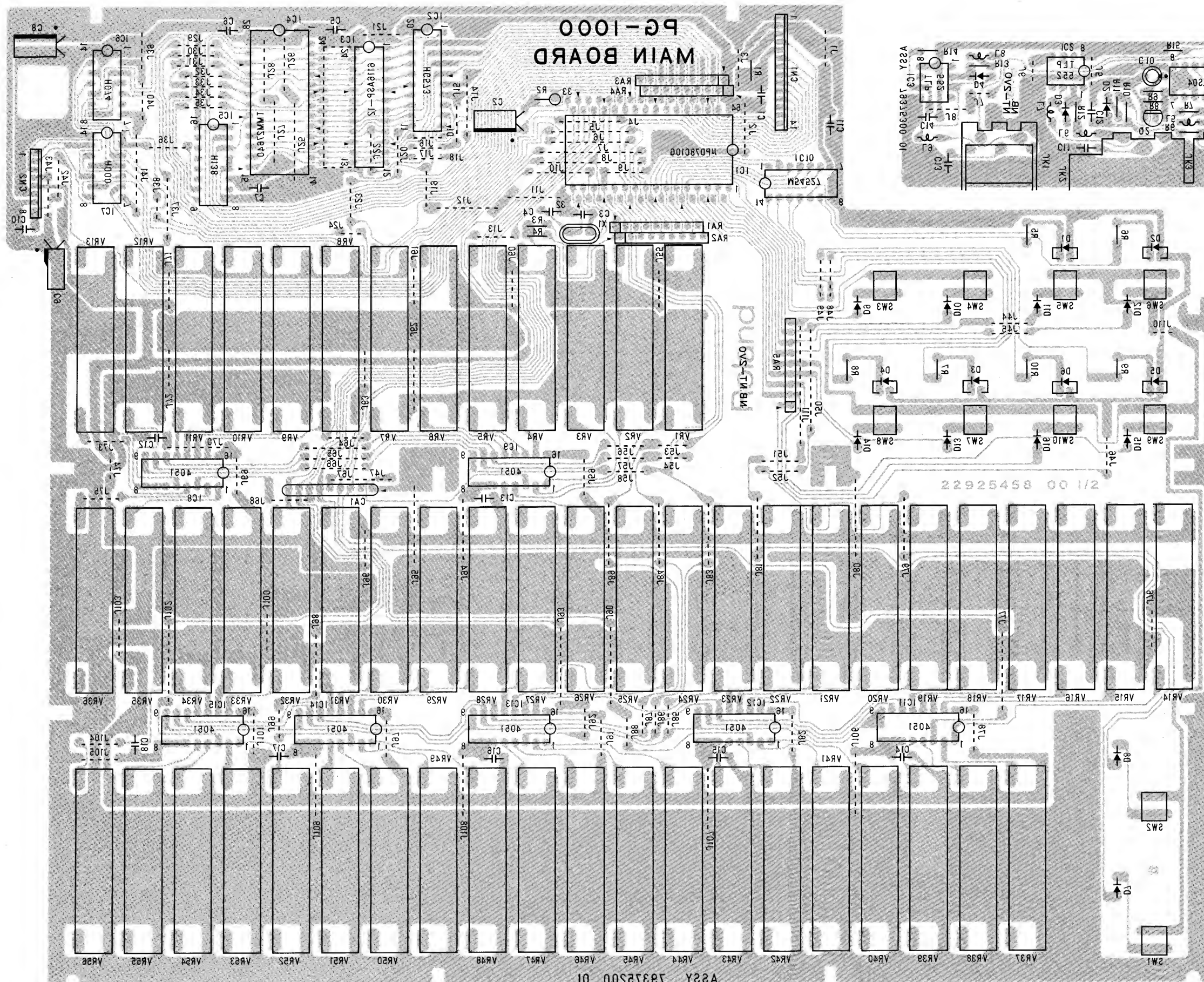
MIDI BOARD

7937530000



- SW1 : MANUAL
- SW2 : PARAMETER REQUEST
- SW3 : PREVIOUS VALUE
- SW4 : MIDI CHANNEL
- SW5, D1 : COMMON SELECT UPPER
- SW6, D2 : COMMON SELECT LOWER
- SW7, D3 : PARTIAL SELECT UPPER 1
- SW8, D4 : PARTIAL SELECT UPPER 2
- SW9, D5 : PARTIAL SELECT LOWER 1
- SW10, D6 : PARTIAL SELECT LOWER 2

17	18	19	20	21	22	23	24	25	26	27
MIDI BOARD			79375300		(pcb 22925458 1/2)					

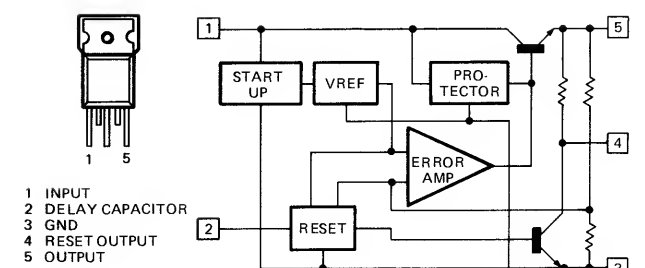


CPU
μPD78C70G

Pin	Signal	Pin	Signal
PA0	1	64	Vcc
PA1	2	83	VDD
PA2	3	62	PD7
PA3	4	61	PD6
PA4	5	60	PD5
PA5	6	59	PD4
PA6	7	58	PD3
PA7	8	57	PD2
PB0	9	56	PD1
PB1	10	55	PD0
PB2	11	54	PF7
PB3	12	53	PF6
PB4	13	52	PF5
PB5	14	51	PF4
PB6	15	50	PF3
PB7	16	49	PF2
PC0/TxD	17	48	PF1
PC1/RxD	18	47	PFO
PC2/SCR	19	46	ALE
PC3/INT2	20	45	WR
PC4/TO	21	44	RD
PC5/CI	22	43	AVcc
PC6/CO0	23	42	VAREF
PC7/CO1	24	41	AN7
NM1	25	40	AN6
INT1	26	39	AN5
MODE1	27	38	AN4
RESET	28	37	AN3
MODE0	29	36	AN2
X1	30	35	AN1
X2	31	34	AN0
Vss	32	33	AVss

TOP VIEW

L78MRO5R



View from foil side

PROGRAMMER FOR D-50

MODEL PG-1000

MIDI Implementation Chart

Date : Feb. 6. 1987

Version : 1.00

PPOGRAMMER FOR D-50

MODEL PG-1000

MIDI Implementation

Date : Feb. 6. 1987

Version : 1.00

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default Changed	1 ** 1-16 **	1 ** 1-16 **	
Mode	Default Messages Altered	X * *****	X X	
Note Number	True Voice	* *****	X	
Velocity	Note ON Note OFF	* *	X X	
After Touch	Key's Ch's	* *	X X	
Pitch Bender		*	X	
Control Change		*	X	
Prog Change		* *****	X X	
System Exclusive		○	○	Tone Parameter
System common	Song Pos Song sel True	* * *	X X X	
System Real Time	Clock Commands	* *	X X	
Aux Message	Local ON/OFF All Notes OFF Active Sense Reset	* * ○ X	X X ○ X	
Notes		* This unit transmits all received MIDI messages except undefined status of Common message. (F4H, F5H and Reset status) ** Used as "Device ID" in Exclusive Messages.		

Mode 1 : OMNI ON, POLY
Mode 3 : OMNI OFF, POLY

Mode 2 : OMNI ON, MONO
Mode 4 : OMNI OFF, MONO

○ : Yes
X : No

1. TRANSMITTED DATA

1.1 Undefined Status (F4H, F5H) of Common Messages.

Transmits all received MIDI messages except for Reset (F4H)

1.2 Created message.

Status	Second	Third	Description	
1001 nnnn	0kkk kkkk	0000 0000	Note OFF kkkkkkk = 0 - 127	*1-1
1011 nnnn	0111 1011	0000 0000	All notes off	*1-1
1111 0000	1111 0111	System exclusive	*1-2
1111 1110			Active Sensing	*1-3

Notes :

- *1-1 Transmitted when the Parameter Request button is pushed or when MIDI IN's Non Active condition is detected.
- *1-2 See section 3 (EXCLUSIVE COMMUNICATION).
- *1-3 This unit stops transmitting Active Sense message if this unit detects Non Active condition on MIDI IN.

2. RECOGNIZED RECEIVE DATA

Statu	Second	Third	Description	
1111 0000	1111 0111	System exclusive	*2-1
1111 1110			Active Sensing	

Notes :

- *2-1 See section 3 (EXCLUSIVE COMMUNICATION).

3. EXCLUSIVE COMMUNICATION

3.1 Request (One way) RQ1 1111
(Transmitted only)

Byte	Description
a 1111 0000	Exclusive status
b 0100 0001	Roland-ID #
c 0000 nnnn	Device-ID # = MIDI basic channel. (0 -15) where nnnn + 1 = channel #
d 0001 0100	Model-ID # (D-50)
e 0001 0001	Command-ID # (RQ1)
f 0aaa aaaa	Address MSB
g 0bbb bbbb	Address
h 0ccc cccc	Address LSB
i 0ddd dddd	Size MSB
j 0eee eeee	Size
k 0fff ffff	Size LSB
l 0ggg gggg	Checksum
m 1111 0111	End of System Exclusive (BOX)

Summed value of the all bytes between Command-ID and BOX must be 00H (7 bits). It doesn't include Command-ID and BOX.

3.2 Data set (One way) DT1 12H
(Transmitted and Recognized)

Byte	Description
a 1111 0000	Exclusive status
b 0100 0001	Roland-ID #
c 0000 nnnn	Device-ID # = MIDI basic channel. (0 -15)
d 0001 0100	Model-ID # (D-50)
e 0001 0101	Command-ID # (DT1)
f 0aaa aaaa	Address MSB
g 0bb bbbb	Address
h 0ccc cccc	Address LSB
i 0ddd dddd	Data
j 0eee eeee	Checksum
k 1111 0111	End of System Exclusive

Notes :

- *3-1 PG-1000 transmits this command only when the Parameter Request button is pushed. The following values of Address and Size are transmitted.

Address : [00-00-00]
Size : [00-03-25] (421bytes)

* [hh-mm-ll] 'hh', 'mm' and 'll' are showed by hex decimal.
0hhhhhhh 0mmmmmm 0lllll (binary). MS bit must be 0.

- *3-2 When operating Parameter Request, the receive connector is not MIDI IN but PARAMETER IN

- *3-3 If aaaaaa - cccccc doesn't indicate the address of the tone parameter or the patch factor, the message will be ignored.

- *3-4 The received value that exceeds the valid range of the parameter will be ignored.

When the Manual button is pushed, all the parameter values (knob's positions on the panel) of the Partial, Common and Patch will be transmitted.

- *3-5 See section 4 (ADDRESS MAPPING OF PARAMETERS AND REMOTE FUNCTION).

4. ADDRESS MAPPING OF PARAMETERS AND REMOTE FUNCTION

4.1 Parameter base address (Top address)

Address	Description
[00-00-00]	Upper Partial 1 (0 - 53)
[00-00-40]	Upper Partial 2 (64 - 117)
[00-01-00]	Upper Common (128 - 175)
[00-01-40]	Lower Partial 1 (192 - 245)
[00-02-00]	Lower Partial 2 (256 - 309)
[00-02-40]	Lower Common (320 - 357)
[00-03-00]	Patch (384 - 420)

4.2 Patch write address
(Transmitted only)

Transmitted when the Manual Button is pushed twice while holding the Partial Mute button down.

Address	Description
[00-20-00]	Patch write function *4-1

- *4-1 Transmitted a Data byte consisting of two 00H (2 bytes).

4.3 Partial parameters

(Parameter address = Base address + Offset)

Offset	Function	Value
0	WG Pitch Coarse	0 - 72 (C1 -C7)
1	WG Pitch Fine	0 - 100 (-50 -+50)
2	WG Pitch Keyfollow	0 - 16 (-1, -1/2, -4/1, 0, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, s1, s2)
3	WG Mod LFO Mode	0 - 3 (OFF, (+), (-), A&L)
4	WG Mod P-ENV Mode	0 - 2 (OFF, (+), (-))
5	WG Mod Bender Mode	0 - 2 (OFF, KF, NORMAL)
6	WG Waveform	0 - 1 (SQU, SAW)
7	WG PCM Wave No.	0 - 99 (1 - 100)
8	WG Pulse Width	0 - 100 (0 - 100)
9	WG PW Velocity Range	0 - 14 (-7 - +7)
10	WG PW LFO Select	0 - 5 (+1, -1, +2, -2, +3, -3)
11	WG PW LFO Depth	0 - 100 (0 - 100)
12	WG PW Aftertouch Range	0 - 14 (-7 - +7)
13	TVF Cutoff Frequency	0 - 100 (0 - 100)
14	TVF Resonance	0 - 30 (0 - 30)
15	TVF Keyfollow	0 - 14 (-1, -1/2, -4/1, 0, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2)

16	TVF Bias Point/Direction	0 - 127 (<A1 - <C7, >A1 - >C7)
17	TVF Bias Level	0 - 14 (-7 - +7)
18	TVF ENV Depth	0 - 100 (0 - 100)
19	TVF ENV Velocity Range	0 - 100 (0 - 100)
20	TVF ENV Depth Keyfollow	0 - 4 (0 - 4)
21	TVF ENV Time Keyfollow	0 - 10 (0 - 10)
22	TVF ENV Time 1	0 - 100 (0 - 100)
23	TVF ENV Time 2	0 - 100 (0 - 100)
24	TVF ENV Time 3	0 - 100 (0 - 100)
25	TVF ENV Time 4	0 - 100 (0 - 100)
26	TVF ENV Time 5	0 - 100 (0 - 100)
27	TVF ENV Level 1	0 - 100 (0 - 100)
28	TVF ENV Level 2	0 - 100 (0 - 100)
29	TVF ENV Level 3	0 - 100 (0 - 100)
30	TVF ENV Sustain Level	0 - 100 (0 - 100)
31	TVF ENV End Level	0 - 1 (0, 100)
32	TVF Mod LFO Select	0 - 5 (+1, -1, +2, -2, +3, -3)
33	TVF Mod LFO Depth	0 - 100 (0 - 100)
34	TVF Mod Aftertouch Range	0 - 14 (-7 - +7)

35	TVA Level	0 - 100 (0 - 100)
36	TVA Velocity Range	0 - 100 (-50 -+50)
37	TVA Bias Point Direction	0 - 127 (<A1 - <C7, >A1 - >C7)
38	TVA Bias Level	0 - 12 (-12 - 0)
39	TVA ENV Time 1	0 - 100 (0 - 100)
40	TVA ENV Time 2	0 - 100 (0 - 100)
41	TVA ENV Time 3	0 - 100 (0 - 100)
42	TVA ENV Time 4	0 - 100 (0 - 100)
43	TVA ENV Time 5	0 - 100 (0 - 100)
44	TVA ENV Level 1	0 - 100 (0 - 100)
45	TVA ENV Level 2	0 - 100 (0 - 100)
46	TVA ENV Level 3	0 - 100 (0 - 100)
47	TVA ENV Sustain Level	0 - 100 (0 - 100)
48	TVA ENV End Level	0 - 1 (0, 100)
49	TVA ENV T1 Vela Follow	0 - 4 (0 - 4)
50	TVA ENV Time Keyfollow	0 - 4 (0 - 4)
51	TVA Mod LFO Select	0 - 5 (+1, -1, +2, -2, +3, -3)
52	TVA Mod LFO Depth	0 - 100 (0 - 100)
53	TVA Mod Aftertouch Range	0 - 14 (-7 - +7)

4.4 Common parameters

(Parameter address = Base address + Offset)

Offset	Function	Value
10	Structure No.	0 - 6 (1 - 7)
11	P-ENV Velocity Range	0 - 2 (0 - 2)
12	P-ENV Time Keyfollow	0 - 4 (0 - 4)
13	P-ENV Time 1	0 - 50 (0 - 50)
14	P-ENV Time 2	0 - 50 (0 - 50)
15	P-ENV Time 3	0 - 50 (0 - 50)
16	P-ENV Time 4	0 - 50 (0 - 50)
17	P-ENV Level 0	0 - 100 (-50 -+50)
18	P-ENV Level 1	0 - 100 (-50 -+50)
19	P-ENV Level 2	0 - 100 (-50 -+50)
20	P-ENV Sustain Level	0 - 100 (-50 -+50)
21	P-ENV End Level	0 - 100 (-50 -+50)
22	Pitch Mod LFO Depth	0 - 100 (0 - 100)
23	Pitch Mod Lever	0 - 100 (0 - 100)
24	Pitch Mod Aftertouch	0 - 100 (0 - 100)
25	LFO-1 Waveform	0 - 3 (TRI, SAW, SQU, RND)
26	LFO-1 Rate	0 - 100 (0 - 100)
27	LFO-1 Delay Time	0 - 100 (0 - 100)
28	LFO-1 Sync	0 - 2 (OFF, ON, KEY)
29	LFO-2 Waveform	0 - 3 (TRI, SAW, SQU, RND)
30	LFO-2 Rate	0 - 100 (0 - 100)
31	LFO-2 Delay Time	0 - 100 (0 - 100)
32	LFO-2 Sync	0 - 1 (OFF, ON)
33	LFO-3 Waveform	0 - 3 (TRI, SAW, SQU, RND)
34	LFO-3 Rate	0 - 100 (0 - 100)
35	LFO-3 Delay Time	0 - 100 (0 - 100)
36	LFO-3 Sync	0 - 1 (OFF, ON)
37	Low EQ Frequency	0 - 15 (63, 75, 88, 105, 125, 150, 175, 210, 250, 300, 350, 420, 500, 600, 700, 840)

38	Low EQ Gain	0 - 24 (-12 - +12)
39	High EQ Frequency	0 - 21 (250, 300, 350, 420, 500, 600, 700, 840, 1.0, 1.2, 1.4, 1.7, 2.0, 2.4, 2.8, 3.4, 4.0, 4.8, 5.7, 6.7, 8.0, 9.5)

40	High EQ Q	0 - 8 (0.3, 0.5, 0.7, 1.0, 1.4, 2.0, 3.0, 4.2, 6.0)
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41	High EQ Gain	0 - 24 (-12 - +12)
42	Chorus Type	0 - 7 (1 - 8)
43	Chorus Rate	0 - 100 (0 - 100)
44	Chorus Depth	0 - 100 (0 - 100)
45	Chorus Balance	0 - 100 (0 - 100)

46	Partial Mute	0 - 3
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Value	Partial 1	Partial 2
0	Muting	Muting
1	Sounding	Muting
2	Muting	Sounding
3	Sounding	Sounding

47	Partial Balance	0 - 100 (0 - 100)
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